WHAT IS CLAIMED IS:

1. A scanning optical microscope comprising:

an illumination light source;

a lens member for altering the cross-sectional shape aspect ratio of a beam of light emitted from the light source;

at least one lens for converging beams of light of different cross-sectional shape aspect ratio to create a linear light;

a first light modulation member for imparting shade to the converged linear light;

at least one lens for forming the light to which the shade has been imparted as a parallel light;

at least one scanning member for altering the angle of illumination;

at least one lens for focusing the light to which the shade has been imparted;

an objective lens for projecting the light to which the shading has been imparted to a sample body; and

at least one lens for imaging the reflected light from the sample body or the light generated by the sample body on a light detecting element.

2. The scanning optical microscope of Claim 1, wherein the light detecting element is one of a line sensor, an imaging device, and a photo detector.

3. The scanning optical microscope of Claim 1, wherein the illumination light source comprises a laser beam and a white light source.

4. The scanning optical microscope of Claim 3, wherein the white light source is selected from a group consisting of a

high-pressure mercury lamp, xenon lamp, halogen lamp and metal halide lamp.

5. The scanning optical microscope of Claim 1, further comprising a second light modulation member than can impart a confocal effect to light from the sample body, and the confocal effect can be one of optimized and reduced by changing of one of the beam diameter and number of the beams of the light transmitted through the light modulation member.

6. The scanning optical microscope of Claim 1, further comprising a computer for controlling the start and stopping operations and the regulation of the scanning speed of the at least one scanning member, the illumination pattern of the light modulation member, and the ON/OFF irradiation of the illumination light on the sample body.

7. The scanning optical microscope of Claim 1, further comprising:

a diffraction grating wherein interference fringes are formed by the splitting of light from the light source into a plurality of beams and the interference of this plurality of beams, and one of a lens and an optical member necessary for the formation of the interference fringes; and

a digital mirror device having a plurality of reflecting mirrors, each of the mirrors being capable of being switched ON and OFF, wherein each mirror does not reflect incident light when in the OFF state and reflects incident light when in the on state.

8. The scanning optical microscope of Claim 1, further comprising a one-dimensional mirror array consisting of two or more MEMS (Micro Electro Mechanical System) mirrors.

9. The scanning optical microscope of Claim 1, further comprising one of:

a liquid crystal plate having a changeable transmissivity; and

an SLM (spatial light modulator).

10. The scanning optical microscope of Claim 1, wherein the at least one scanning member is a galvanometer mirror and wherein the position of a single-point illumination light can be shifted temporally by controlling the light modulation member in which the shade pattern is alterable.

11. The scanning optical microscope of Claim 1, wherein the light modulation member has means for imparting of various alterable shade patterns in which the shade pattern is alterable, wherein a confocal image is produced by a plurality of points and the sample body can be simultaneously illuminated.

12. The scanning optical microscope of Claim 1, wherein the light modulation member is capable of altering a shade, wherein one segment of the visual field is simultaneously illuminated and the sample body is scanned with a linear light.

13. The scanning optical microscope of Claim 1, characterized in that the lens member necessary for altering the cross-sectional shape aspect ratio of the beam of the light emitted from the light source comprises one of one or more cylindrical lens and one or more f lens.

14. The scanning optical microscope of Claim 1, wherein the scanning member comprises one of a galvanometer mirror, polygon mirror and acousto-optic modulator.

15. The scanning optical microscope of Claim 1, wherein the sample body is scanned several times by linear illumination lights of different shade pattern, and one image is produced from the plurality of scanned data.

16. The scanning optical microscope of Claim 1, wherein the illumination light source comprises a laser and a laser beam from the laser is introduced into the lens member through a fiber.

17. The scanning optical microscope of Claim 1, wherein the illumination light source is an ultra-short pulse laser, and fluorescence from the sample body is observed by multi-photon excitation such as one of two-photon excitation and three-photon excitation.

18. The scanning optical microscope of Claim 17, wherein the ultra-short pulse laser comprises a titanium sapphire laser.

19. The scanning optical microscope of Claim 1, further comprising a spectral diffraction device configured by the insertion of one of a diffraction grating, acousto-optic modulator and spectral element that employs a prism between a photo detector that receives light from the sample body and a light strength modulating member, wherein the photo detector is a two-dimensional photo detector.

20. The scanning optical microscope of Claim 1, wherein non-linear light generated from the sample body can be received by one of secondary harmonic generation, third harmonic generation, Raman light and coherent anti-strokes Raman scattering).

21. The scanning optical microscope of Claim 1, wherein the light detecting element is a two-dimensional imaging device.

22. The scanning optical microscope of Claim 21, wherein the two-dimensional imaging device is selected from a group consisting of a high sensitivity cooled CCD camera, back-illuminated CCD camera, a cascade camera, and a CCD camera with an image intensifier.

23. The scanning optical microscope of Claim 1, wherein the light detecting element is a line sensor.

24. The scanning optical microscope of Claim 23, wherein the line sensor is selected from a group consisting of a photo diode array, a PMT array, and a line CCD array.

25. The scanning optical microscope of Claim 1, further comprising means for focusing a plurality of different wavelengths on the light detecting element.